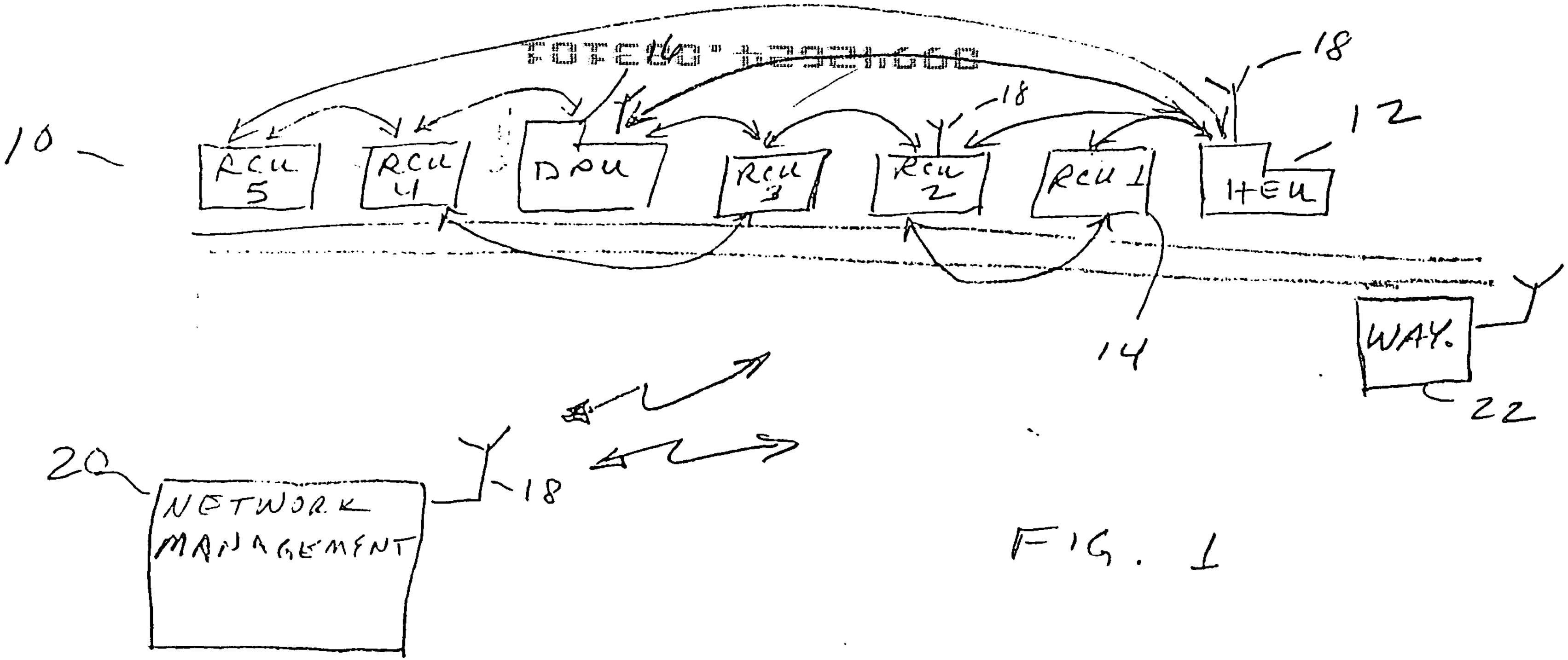
10
RCU 5
RCU 4
DPU
16
RCU 3
RCU 2
18
RCU 1
18
HEU
12
14
WAY.
22
20
NETWORK MANAGEMENT
18

FIG. 1

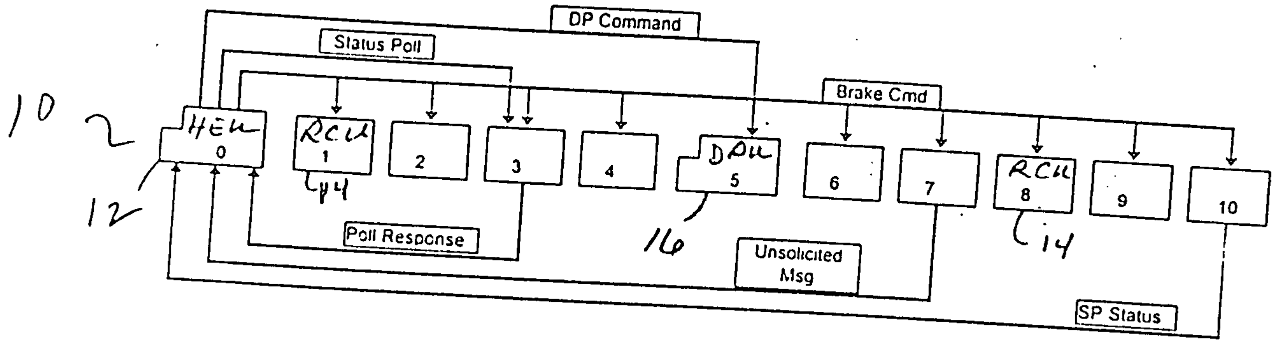
DP Command
Status Poll
Brake Cmd
10
HEU 0
12
RCU 1
14
2
3
4
DPU 5
16
6
7
RCU 8
14
9
10
Poll Response
Unsolicited Msg
SP Status

FIG. 2

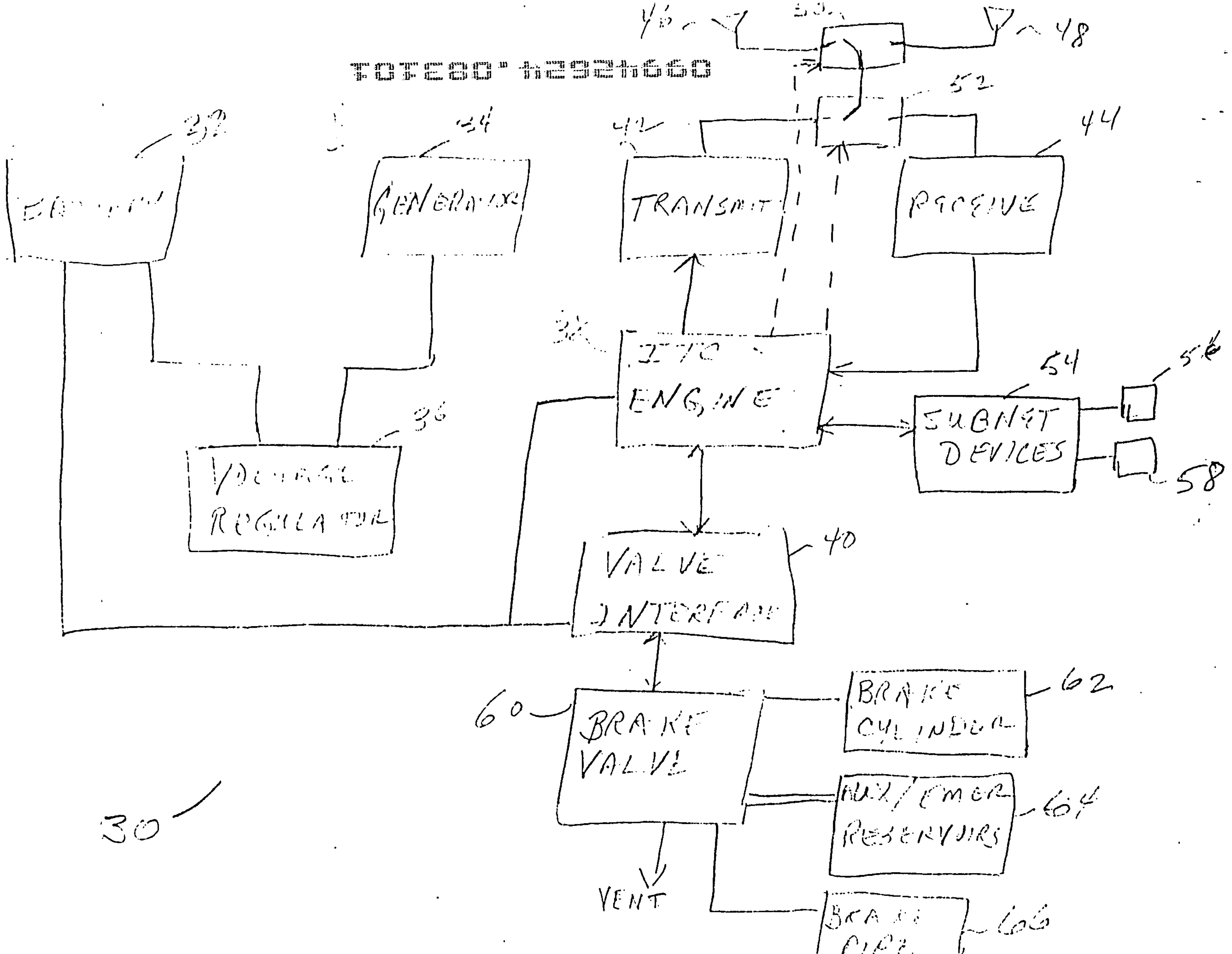
46
50
48
52
32
BATTERY
34
GENERATOR
42
TRANSMIT
44
RECEIVE
38
I/O ENGINE
54
SUBNET DEVICES
56
58
36
VOLTAGE REGULATOR
40
VALVE INTERFACE
60
BRAKE VALVE
62
BRAKE CYLINDER
64
AUX/EMER RESERVOIRS
66
BRAKE PIPE
VENT
30

FIG. 3

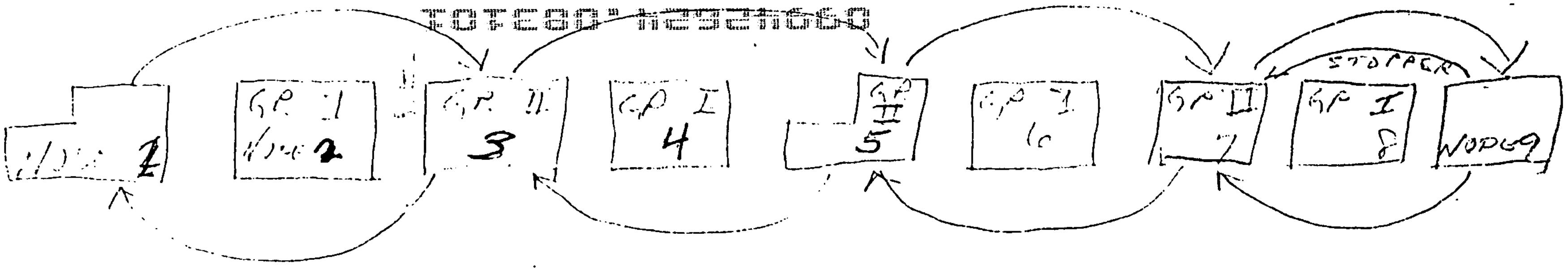

FIG. 4

FIG.

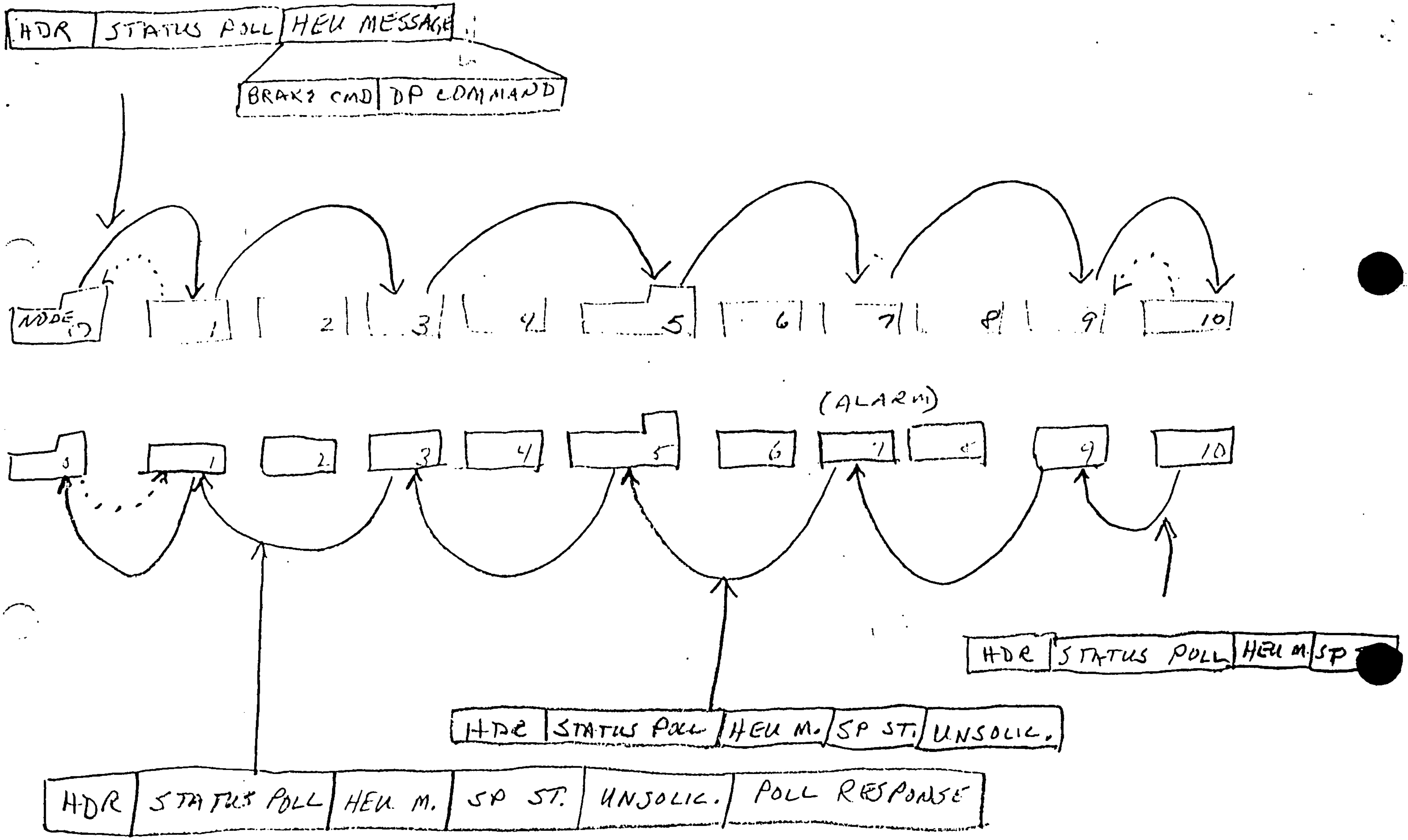
HDR
STATUS POLL
HEU MESSAGE
BRAKE CMD
DP COMMAND
NODE ID
1
2
3
4
5
6
7
8
9
10
(ALARM)
0
1
2
3
4
5
6
7
8
9
10
HDR
STATUS POLL
HEU M.
SP
HDR
STATUS POLL
HEU M.
SP ST.
UNSOLIC.
HDR
STATUS POLL
HEU M.
SP ST.
UNSOLIC.
POLL RESPONSE

FIG. 5

Relay Group Identificat[illegible]um Table

Groups (nominal hop distance)	ID no	A	B	C	D	E	F
Default Single Relay Group	0	0 0x00	-	-	-	-	-
Single Relay Group Solution	1	1 0x01	-	-	-	-	-
Two Relay Group Solution	2	2 0x02	3 0x03	-	-	-	-
Three Relay Group Solution	3	4 0x04	5 0x05	6 0x06	-	-	-
Four Relay Group Solution	4	7 0x07	8 0x08	9 0x09	10 0x0A	-	-
Five Relay Group Solution	5	11 0x0B	12 0x0C	13 0x0D	14 0x0E	15 0x0F	-
Six Relay Group Solution	6	16 0x10	17 0x11	18 0x12	19 0x13	20 0x14	21 0x15

FIG. 6

Byte	Bits	Name	Description
0-3	1	*Write-over Flag*	1 = write over, 0 = no write over.
	1	*Rebound Flag*	1 = wrap at reversing node, 0 = delete at reversing node.
	10	*Source Address*	Logical Node Address of the ADU's source.
	10	*Destination Address 1*	First Logical Node Address in destination address range.
	10	*Destination Address 2*	Last Logical Node Address in destination address range.
4	8	*ADU Length*	Length of current ADU (less the eight bytes of overhead.) This value is 0 - 64, or 0 - 255 for special code download ADUs.
5	8	*Source Application ID*	Defines the source application (to be used for addressing responses)
6	8	*Destination Application ID*	Defines the destination application.
7	8	*ADU Type*	Application specific identifier for the ADU.
8 - n	-	*Embedded ADU data*	0 to 64 byte ADU data field (or 0 to 255 byte ADU data field for code download ADUs.)
n+1	8	*Checksum*	2's Complement checksum calculated on the entire packet.

FIG. 7

Byte	Bits	Name	Description
0-1	16	*Circuit Identification Code (LSBs)*	Low order 16 bits of the 24 bit circuit identification code for the communications circuit associated with the packet.
2	8	*Circuit Identification Code (MSB)*	High order 8 bits of the 24 bit circuit identification code for the communications circuit associated with the packet.
3	1	*Token Type*	1 = SMOKEN, 0 = Normal
3	1	*reserved*	Currently unused bit.
3	5	*Sequence Count*	Sequence count identifies each new token transmitted from pilot node.
3	1	*Direction Flag*	Marks packet as inbound or outbound, 1 = inbound.
4	4	*Hop Distance*	Value that, when added to the Destination Node Address, indicates the source of the transmission.
4-5	12	*Hop Count*	Hop count value for the current transmission of this packet.
6	1	*Short Path Flag*	Set for a non-SMOKEN token that was reversed before the reversing node.
6	5	*Relay Group*	Relay group associated with the packet.
6-7	10	*Destination Node Address*	Next node to relay current token for synchronous token, local node address for an asynchronous transmission.
8	2	*reserved*	Currently unused field.
8	6	*ADU Count*	Number of ADU's embedded in current RDU.
9 - n	-	*Embedded ADUs*	Zero to sixty three embedded ADU elements.
n - (n+3)	32	*Cyclic Redundancy Check (CRC)*	Packet verification CRC based on CCITT standard algorithm.

FIG. 8

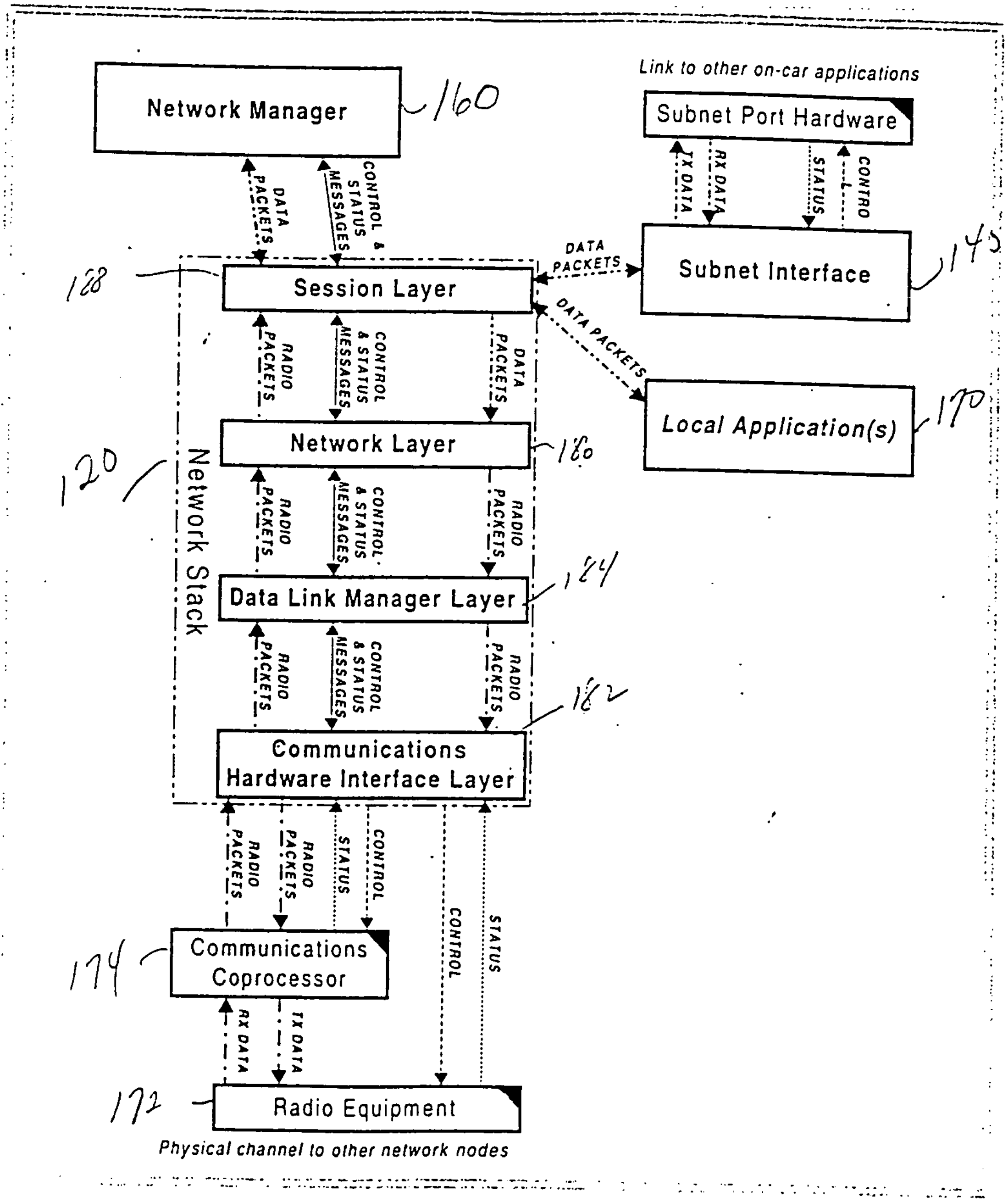
Network Manager
160
Link to other on-car applications
Subnet Port Hardware
TX DATA
RX DATA
STATUS
CONTRO
DATA PACKETS
CONTROL & STATUS MESSAGES
DATA PACKETS
Subnet Interface
145
128
Session Layer
DATA PACKETS
RADIO PACKETS
CONTROL & STATUS MESSAGES
DATA PACKETS
Local Application(s)
170
Network Layer
180
120
Network Stack
RADIO PACKETS
CONTROL & STATUS MESSAGES
RADIO PACKETS
Data Link Manager Layer
184
RADIO PACKETS
CONTROL & STATUS MESSAGES
RADIO PACKETS
182
Communications Hardware Interface Layer
RADIO PACKETS
RADIO PACKETS
STATUS
CONTROL
CONTROL
STATUS
174
Communications Coprocessor
RX DATA
TX DATA
172
Radio Equipment
Physical channel to other network nodes

FIGURE 9